'Making Life Lively': Co-estrangement in live electroacoustic improvisation

ALISTAIR MACDONALD

Royal Conservatoire of Scotland, Glasgow, UK
Email: a.macdonald@rcs.ac.uk

The use of live electronic processing to extend, modify or transform an acoustic musical instrument has its roots in the recording and broadcast technologies that were developed in the first few decades of the twentieth century. In the second half of the century these tools were adopted by composers and musicians in many musical genres and have become commonplace and in some musics, ubiquitous. The perceived musical relationship between instrument and its electronic 'other' has been discussed largely from the point of view of listener and composer. This paper focuses on the *performers*' perspective through reflection on and discussion of the author's working methods in improvising duo contexts. The author suggests 'estrangement' as a term to describe and understand aspects of the performer's experience of live transformation and discusses how this estrangement might influence the relationship between musicians and the resulting musical interaction in improvisation, and finally offers 'co-estrangement' as a description of his shared experience in such improvising duos.

1. INTRODUCTION

The technological mediation of sound made possible through recording and broadcast technologies has had an impact on musical expression equivalent in scale to that which printing had 300 years previously (Chanan 1995). Allied to this has been the development of technologies to enhance performance, beginning with amplification that began to be used in popular music in the mid- to late 1920s and quickly became commonplace (Lockheart 2003). The electronic mediation of sound has continued to offer new musical possibilities as real-time transformation techniques have emerged over the last six decades.

I propose the idea of 'estrangement' as a lens for the understanding of performer experience of live electronics in improvising. I will discuss estrangement as both method/practice and aesthetic through discussion of the development of my own work, presenting the relationship between musicians as a kind of co-estrangement affecting musical decision-making and outcomes.

In order to situate my own practice as described in this paper, I limit the scope of 'improvisation' to spontaneous music-making, generally 'free improvisation'

where there is nothing decided or agreed in advance, apart, perhaps from approximate duration.

I will also limit the scope of live electronics. In the chapter 'Live Electronic Music', Collins, Schedel and Wilson point out 'An attempt to categorize all kinds of electronic music performance would be doomed to failure' (Collins, Schedel and Wilson 2013: 188). I will focus only on those techniques I use in my own practice, principally real-time digital transformation of acoustic sounds from instrument or voice, and new sound made in the moment using the sound of another musician. I do not, therefore, include here sound *synthesis*, nor will I discuss simple amplification, or electronic versions and derivations of acoustic instruments such as electric pianos and organs and electric guitars along with effects pedals. Principally this is because, in those cases, the electronics are under the control of the players themselves.

While my experience, discussed here, has involved musicians who come from and are aligned with multiple musical genres, from Western classical, jazz and traditional or folk musics, as well as those who identify principally as free improvisers, our work together has principally been 'free' as (loosely) defined previously.

2. LIVE ELECTRONICS: SOME HISTORY

It was not until the 1960s that live electronic manipulation of sound became a conscious, creative musical practice, separated from both the instrument and the agency of the player. Works such as Karlheinz Stockhausen's *Mikrophonie I* and *II* and *Mixtur*, composed in 1964 and 1965, had a significant impact (Emmerson 1991). *Mikrophonie I* is written for a single instrument, a tam-tam, but a number of players comprising two percussionists, two 'mikrophonists' each holding and moving a microphone, and one or two musicians controlling the amplification and filtering of the sounds captured by the microphones. Thus, the transformation of the tam-tam involves an explicitly performative set of actions, separate from the actions of the percussionists. In *Mikrophonie II* composed in 1965 for choir, Hammond organ and ring modulators, and *Mixtur* for orchestra, sine tone

generators and ring modulators, the modulation is again not in the control of the players/singers themselves.

Drawing on ideas and aesthetics from Cage and other experimental composers as well as a growing avant-garde improvisation movement, live electronics began to find its way into music in ways that reflected a more improvisatory approach. John Cage's *Solos for Voice 2* (1961) appears on the LP *Extended Voices*, released in 1967. 'The electronic version of this work was developed by Gordon Mumma and David Tudor. The singers' sounds are picked up by several types of throat, lip and cup microphones, are fed into a complex configuration of electronic equipment and are then processed in real time during the performance' (Lucier 1967).

Simon Emmerson discusses three early British groups – Gentle Fire, Intermodulation and West Square Electronic Music Ensemble:

> All three of the groups … also acknowledge the influence of the ensemble created by Karlheinz Stockhausen in 1964 mostly for the performance of his own works. The link with Gentle Fire is explicit through Hugh Davies, Stockhausen's assistant from 1964–67; Tim Souster had been the BBC Radio 3 producer of one of the Stockhausen Group's earliest recordings in London in June 1967, while Roger Smalley had attended Stockhausen's Darmstadt Summer Course that same year … Barry Anderson spoke of his experiences of *Kontakte* as having changed the direction of his musical life. (Emmerson 1991: 180)

Souster acknowledged the influence of 'AMM (founded in 1965 by Keith Rowe, Lou Gare and Eddie Prévost) which rejected all written materials, integrating electronic distortion and amplification as "instrumental extensions" within an often predominantly acoustic framework' (ibid.). In AMM the musicians used technology to make new sounds available as mutable, sonic material. 'In addition to amplifying their instruments, Cardew and Gare would apply contact microphones to various common objects to amplify the sounds made by, for example, rubbing a glass jar or striking a coffee tin' (Wikipedia 2019). Emmerson himself was also involved in an influential duo partnership with Lol Coxhill. 'The Digswell House concert by Lol Coxhill and Simon Emmerson is one of the earliest examples of a saxophonist being processed by electronics controlled by another musician' (Davidson 2001).

Other notable groups include Musica Elettronica Viva (MEV), formed in Rome in 1966 by a group of American musicians including composers Allan Bryant, Alvin Curran, Jon Phetteplace and Frederic Rzewski, soprano Carol Plantamura and others. From the beginning their improvised work included acoustic and synthetic sounds but also live electronic transformation and spatialisation, with Rzewski designing a 'photo-resistor mixer' to spatialise sounds in 1967 (Bernstein 2010). In the same year they also performed a version of Cage's *Solos for Voice 2* using a Moog synthesiser to transform Carol Plantamura's voice (Holmes 2016). Rzewski writes that for the group

> Materials … consist of new and in part irrational phenomena directly connected with electronics: the performer's entire body and his sense of identity are affected by such things as intermodulation and feedback. It … goes beyond mere formal relations and deals with new ones such as that existing between many different individuals considered not as mere 'performers' but as living bodies, and the relation created between the individual and his own 'double' — the electronically transformed signal issuing from the loudspeaker membrane. (Austin and Kahn 2011: 107)

Evan Parker's ElectroAcoustic Ensemble with Lawrence Casserley 'formed in 1990 as a sextet to explore the possibilities of real time signal processing in an improvising context' (Parker n.d.). I first heard the group in the mid-1990s and this was a particularly important source of inspiration for me. In the ensemble musicians often work in pairs of instrumentalist and electronic performer. Parker is quite candid: 'It's funny that I have this electro-acoustical ensemble and I don't really have a clue what those guys are doing technically, I just know that we can get to a certain music that you can't get to any other way' (Parker 2006: 413). Later in the article he is asked by F.-M. Uitti 'How do you feel about others "taking" and processing your sound?' He replies 'Well, it's the only way that live electronics work' (ibid.: 414).

Another duo whose work explores live electronics in improvisation is that of Phil Durrant and John Butcher whose 'electromanipulation' performances spanned 1997 to 2004. 'Over 7 years the electronic hardware changed from filter boxes to computers, but feedback – both electrical and in how the musicians reacted – governed the duo, with each player partially controlling the other's output' (Butcher n.d.).

Baalman, Emmerson and Brandtsegg in their paper on 'crossadaptive processing' describe a more technically complex approach in their research 'where one performer's output effects the audio processing of another … by analysis of the acoustic signal, extracting expressive features and creating modulation vectors that can be mapped to audio processing parameters' (Baalman, Emmerson and Brandtsegg 2018: 86). In their research they apply this model to 'performance practices of the audio processing musician, augmented (acoustic) instruments, live algorithms, group improvisation and interconnected musical networks' (ibid.).

What we can see in both composing and improvising is that technology involving electricity offered new

musical tools, free from the history and baggage of traditional musical expression. Note AMM's use of amplification to augment their sonic palette, and Rzewski's use of spatialisation; and in the case both of Parker's ensemble and of Durrant and Butcher, the separation of each player from the control of their electronic transformation. Of particular significance here is Rzewski's description of the alteration to the performer's *body and identity* through the electronic transformation, something I will return to later.

3. WHY AND WHERE DO LIVE ELECTRONICS AND IMPROVISATION MEET?

Alain Savouret (Canonne 2010) associates the emergence of free improvisation to the listening engendered by, or perhaps that engendered, electroacoustic music (chicken or egg?), as a result of the magnification of detail that recording and amplification affords. He talks about 'An ear training covering the field of the audible in its totality' that flows from the heritage of electroacoustic music; 'a listening revitalised by the intrusion of the "magnifying mirror" of the loudspeaker' (ibid., my translation). He continues 'Free improvisation leads to or "authorises" extended playing techniques; but these techniques are found downstream, not upstream from a personalised expressive will' (ibid., my translation).

While Savouret proposes this new listening as the catalyst for 'free improvisation', I would argue that live electronics can result in improvisation even further from an instrumental music paradigm, opening up a new realm and potentially distinct possibilities for musical expression, interaction and identity. With live electronics the musical focus can shift to aspects and details of sound and music that are *only* exposed through the electronics, or new sounds that are only brought about through digital processing. In my experience with a number of musicians, and especially when working with less experienced improvisers, players are prompted to explore an even more expanded palette of material from this novel musical context.

From the other direction, so to speak, Richard Barrett argues that:

> Any activity in the live performance of electronic music ought to compel the practitioner to think about the role of improvisation, as a result of the nature of the medium itself. It seems to me that neither notation nor any other kind of compositional 'fixity' is idiomatic to the live electronic domain … the electronic 'instrumentarium' shows no sign of even heading in the direction of standardisation. (Barrett 2006)

It would seem to me, then, that improvisation and live electronics are natural partners. Free improvisation begets new sounds to express new ideas, free from the constraints and tropes of other musical traditions

and languages. At the same time new musical possibilities emerge via technology, which itself draws on improvisation as a method for innovation.

4. WHY MIGHT THE IDEA OF 'ESTRANGEMENT' BE USEFUL?

The prompt to consider my practice in terms of *estrangement* came in a call for papers (VIS 2018), which quoted Svetlana Boym: 'By making things strange, the artist does not simply displace them from an everyday context into an artistic framework; he also helps to "return sensation" to life itself, to reinvent the world, to experience it anew. Estrangement is what makes art artistic; but, by the same token, it makes life lively, or worth living' (Boym 2008). Here Boym is paraphrasing Russian Formalist literary theorist Victor Shklovsky who first used the term 'estrangement', or *ostranenie*, in his 1917 essay 'Art as Technique'. He writes:

> Art exists that one may recover the sensation of life; it exists to make one feel things, to make the stone stony. The purpose of art is to impart the sensation of things as they are perceived and not as they are known. The technique of art is to make objects 'unfamiliar,' to make forms difficult, to increase the difficulty and length of perception. (Shklovsky 1965: 12)

But Boym goes further. As Julia Alekseyeva says 'By emphasizing estrangement as that which "makes art artistic," Boym also subtly refers to the etymology of the word "aesthetic." The term "aesthetic" derives from the Greek *aisthetikos*, meaning perceptive; in contemporary English, "aesthesis" suggests pathos, feeling, and sensitivity' (Alekseyeva 2017). This proved a useful catalyst for reflection on my own practice of improvisation, working with live electronics to process the sounds of an acoustic musician in real time.

In addition to the Russian formalists' *ostranenie*, we find the concept of estrangement emerging in a number of disciplines in the twentieth century. Sigmund Freud begins his essay 'The Uncanny' (Freud 1919) by defining *unheimlich* (the uncanny) as an aesthetic experience. He goes on to emphasise 'that this feeling [of estrangement], an experience close to a sensation, is at its peak when it is triggered by the reappearance of a familiar object that has been forgotten or repressed for a long time. The feeling of estrangement can be compared to the phenomena of déjà vu or déjà vécu (previously lived)' (de Mijolla-Mellor 2005: 524). For Freud, and as implied by Boym previously, 'aesthetics is understood to mean not merely the theory of beauty but the theory of the qualities of feeling' and 'The subject of the '"uncanny" … is undoubtedly related to what is frightening—to what arouses dread and horror … [and] tends to coincide with what

excites fear in general' (Freud 1919). Through modernism we have seen a shift in aesthetics towards the inclusion of a fascination with the grotesque, the distorted, the unreal.

In visual art there are many examples from the early twentieth century. From expressionism to cubism, Dadaism and more, visual artists often aimed to shock by making the world strange. In theatre, Bertold Brecht used what he described as *Verfremdungseffekt*, which can be translated as 'distancing effect', 'alienation effect' or 'making strange effect', a technique that 'estranges' the audience. 'The V-effect is to make the spectator adopt an attitude of inquiry and criticism in his approach to the incident' (Brecht 1964: 136). Composers too were reimagining the world of music. Igor Stravinsky's atavistic *Rite of Spring* and Edgard Varèse's work for percussion instruments, *Ionisation*, had immediate lasting impacts, and Arnold Schoenberg conjured up the 'air from another planet' in his Second String Quartet.

More germane to our discussion, Simon Emmerson (1994) describes three 'acousmatic dislocations' that resulted from the phenomenon of sound recording: those of time, space and mechanical causality. These led to the possibility of a new art of sound, and Pierre Schaeffer, an important figure in its development, described what he called reduced listening (*écoute réduite*) as a technique of distancing or estrangement that encourages or at least describes a more objective approach to sound materials or *sound objects* (Schaeffer, North and Dack 2017). The 'hidden' source can be listened to without recognition hindering an appreciation of purely sonic qualities.

But why in this context might we use the term 'estrangement' instead of 'transformation'? Because, rather than simply describing the technical 'facts' of transformation (real to abstract), I am interested in the perception the performer has of the experience; how it *feels* (subjectively) rather than how one might *understand* (objectively, technically) what it is to have one's sonic identity as a musician changed in the moment by another person. There is a sense of estrangement when we look in a mirror.

Jacques Lacan (1977) first developed the idea of what he was to call the 'mirror stage', the moment when a child first recognises themself in a mirror, in the 1930s:

> In the first stage, the infant confuses his reflection and reality: he tries to seize hold of the reflection or find it behind the mirror. At the same time he confuses it with the image of the adult holding him. In the second stage 'he acquires the notion of the image and understands that this reflection is not a real being'. In the third, and final, stage, he realises that the image is his own and manifests intense joy. (Tallis 2000: 277)

Simultaneously, in recognising itself as other, the child is alienated from itself, and encounters what Lacan calls the Imaginary. Who, when faced with a distorting mirror, does not play for a while, pull faces, move around to test the distortion on their own body? The sensation of playing with the unreal, the illusion, exaggeration is a powerful one. We seem to feel our bodies changing shape as our perceptions are altered and we are disoriented; we start to 'dance'. In other words, we constantly test our environment and play and in doing so we learn about ourselves (our identity) in relation to a new environment.

Artist Erika Janunger plays with this phenomenon in her *Balansakter* (Balancing Acts 2017). Janunger's work, which I saw in Dansmuseet, Stockholm in 2018, consists of a large, open-sided box, decorated and furnished as a room, the whole box rotated at an angle so that a 'floor' may appear as a wall or ceiling. A video camera, tilted at the same angle, captures the room and relays the image to a video screen so that to the viewer of the screen, the room looks level. Participants in the tilted room create the impression (to the viewer of the relayed image) that they are weightless, standing on a wall, for example, with feet off the 'ground'. It invites play – I couldn't resist, and I was not alone. Who, in a tunnel or cathedral, is not tempted to clap, or make a noise to test the reverberation? Again, I can rarely resist. In making sounds in an unfamiliar acoustic we are testing, rediscovering ourselves through play.

Play is intrinsic to us as humans. It is recognised as 'fundamental to survival, health, well-being and development' (Lester and Russell 2010) to the extent that it is enshrined in Article 31 of the United Nations Convention on the Rights of the Child (UN General Assembly 1989):

> In play, physical movements, voices and language are exaggerated, incomplete or in the wrong order; storylines become unpredictable, random and fantastical; conventional behaviours are inverted or subverted; and the rules of the game are changed to allow play to continue (Sutton-Smith 2003, Burghardt 2005, Pellis and Pellis 2009) ... Play becomes an urge to turn the world upside down and create new identities and forms of expression, to disorder the structured spaces of their worlds. (Lester and Russell 2010: 26)

This need to play continues beyond childhood. Paediatrician and psychoanalyst Donald Winnicott links creativity to play in his book *Playing and Reality* (1971). In it he identifies 'creative apperception' as what 'makes the individual feel that life is worth living' (echoed by Boym previously). He writes:

> I have tried to draw attention to the importance both in theory and in practice of a third area, that of play, which expands into creative living and into the whole cultural life of man ... [this] intermediate area of experiencing

is an area that exists as a resting-place for the individual engaged in the perpetual human task of keeping inner and outer reality separate yet interrelated … it can be looked upon as sacred to the individual in that it is here that the individual experiences creative living. (Winnicott 1971: 138)

Simon Waters suggests that 'improvising—*play*ing with possibilities—appears to be a significant "group empathy" skill' (Waters 2017). He references sociologist Roger Caillois who also suggests that play 'encourages experimenting with individuality and identity'. Waters goes on to state that 'Empathy is thus a process through which encounters with others and otherness may be productive of supplementary potential for the self—of a larger, less "boundaried" sense of what a self might be' (Waters 2017).

It seems to me that this *feeling* of estrangement expresses perfectly what my duo partners have described, and what I myself have also felt. It is this 'less "boundaried" sense of … self' that seems to describe quite well the symbiotic or co-dependent experience I am interested in exploring in my practice.

5. MY PRACTICE

From my first experiences composing in the electroacoustic studio, what struck me was the power of the tools of the studio to transform recorded acoustic sounds into something extraordinary; to problematise them or 'estrange' them. I had little interest in technology for its own sake, nor did I see the studio as a way to control sound more precisely than I could with notes, and I had little interest in synthesis. Rather I became fascinated by the world of illusion that the loudspeaker creates, and of playing (playfully) along what John Young describes as the 'reality–abstraction continuum' (Young 1994).

Estrangement became part of my composing methodology. De-familiarisation became a way for me to discover new things about sounds, new possibilities for their use, and it was this playful, improvisatory process of working that drew me to the medium and a practice that engages consciously with space and illusion. My compositional techniques developed 'downstream' of a playful musical intention, and later led to the practice under discussion that gradually emerged from studio-based composition into a live improvising practice on stage.

A pivotal piece for me was *Sensuous Geographies*, created in collaboration with Sarah Rubidge in 2002–3 (Rubidge and MacDonald 2004). This drew together my compositional practice along with my experience of improvisation and previous collaborations with dance. The piece is a performative installation where participants' speed of movement, location and proximity to each other are tracked,

and this in turn influences layers of sound, each of which is associated with a participant. In addition, there are projected video images of participants, similarly controlled or influenced by their activity in the installation space. Participants are estranged from their identities through totally immersive costumes, and disoriented by blindfolds, having to navigate via sound alone. One enters a central area defined by a textured floor cloth bounded by loudspeakers and semi-transparent screens, dressed in a richly coloured robe and head covering, unsighted and barefoot. A new layer of sound starts as you enter, and as you move, it follows you. You are also aware of other participants in the space through the movement in space of other layers of sound.

An important aspect of the installation is that it was designed to be 'played' with increasing levels of complexity. As its simplest level, participants could quite easily understand how their movement affected their own layer of sound, and perhaps how they might affect another participant's sound (affecting volume or playback speed, for example). However, as they explored more complex levels, more layers of sound transformation were added and this became too difficult to decipher; it was at this point, if not before, that participants *played* more freely. Their loss of control was another estrangement. They were not oblivious to the relationship their movement and/or location might have on sound, but became less concerned with controlling it and more interested in *feeling* the result.

The effect on me of experiencing *Sensuous Geographies* as a participant had an enormous impact on my thinking and practice as a musician. The estrangement I felt became something I wanted to seek out and develop further. Having developed the tracking and sound control environment for *Sensuous Geographies* using MaxMSP, I immediately saw possibilities for adapting this to other areas of my work. I had for a number of years been improvising using simple live electronics and sound playback with players/singers, and my approach had evolved from my studio composition methods along with extensive experience of performing live electronic works by other composers with BEAST (Birmingham Electroacoustic Sound Theatre) over a period of more than ten years. Now I was motivated to develop and enhance my technical resources and design tools for collaborative improvisation. At that time I had just started working with harpist Catriona McKay for whom I was writing, and with whom I established an improvising duo of harp and live electronics, Strange Rainbow, to explore these ideas, tools and methods (MacDonald 2014).

While my own musical practices include composition for concert performance, collaborations with other media (dance, visual art, poetry) and improvisation,

all of which use audio technology to a large extent, in my practice of *improvising* with live electronics with other musicians (usually in a duo), I use the same technology, but my musical actions are quite different in both intent and result.

I can *re-contextualise* the (acoustic) musician's sound world with other sounds, pre-recorded and often pre-transformed, and play short event and gesture type sounds, acting as an independent musician. However, more conspicuously, I use live electronic processing to transform my partner's acoustic sound in the moment and it is this aspect I intend to focus on here.

In his definition of free improvisation, Derek Bailey points to identity: 'The characteristics of freely improvised music are established only by the sonic-musical identity of the person or persons playing it' (Bailey 1993: 83) rather than any particular musical style or language, or set of techniques. Alain Savouret also describes improvisation in terms of identity, self-discovery and self-revelation: 'In the shared musical action, the individual reveals himself to himself, becomes acquainted with the music that can only be his' (Canonne 2010, my translation). Through live transformation we have a symbiotic relationship resulting in a singular, shared output *and identity* rather than two separate/separable parts, a quite different experience for us as performers, compared to a duo improvisation between two discrete instruments.

I do sometimes work with more than one improvising partner, but as Joel Ryan says 'The duos are for me the real thing. Both in the way they so clearly represent what is going on and in the perfect moment for what I want to do musically … With one player the possibilities can be explored in time and this can accumulate dramatic energy' (Ryan 2006). With more players it can become much more difficult to separate out the relationships between the acoustic and its electronic other when there are multiple layers of transformation.

6. LISTENER PERCEPTION

As noted earlier, I am concerned here with the perception the *performer* has of the experience of having their sounds transformed in an *improvised* performance, that is, of *unexpected* estrangement, as this is little discussed. In fixed, usually notated compositions for instrument and live electronics, the composer will usually have a clearly defined idea of the sounding result of the combination, and the player will become familiar with this in the rehearsal process. Analysis and discussion of such music tends to focus then on these fixed relationships and known outcomes. While the audience *may* perceive the instrument to be estranged by the live electronics, Emmerson

develop[s] the argument that the listener [i.e. audience] perceives, first and foremost, effects not causes. The degree to which we might then reconstruct a possible cause from the effects will vary as it always has … Indeed it may not be needed at all in appreciating the expressive content of the music. That is not to say that the relationship is not important – only that we do not need consciously to uncover it for the music to 'make sense'. (Emmerson 2013)

In other words, the audience simply accepts the new, expanded instrument. This is similar to Jonathan Harvey's assertion that 'With live electronics, when electronics are performed in realtime like instruments and combined with instruments (or, of course voices), two worlds are brought together in a theatre of transformations. No-one listening knows exactly what is instrumental and what is electronic any more' (Harvey 1999: 80).

7. PLAYER PERCEPTION AND ESTRANGEMENT

For the player, this new resulting sound world in fixed compositions is not *so* strange but becomes part of their identity in the piece they are performing. In *improvisation* with live electronics the performer may feel more estranged, since where the electronics are improvised by another musician the effect or consequence of the electronics on the sounds the player makes will likely be unknown or unexpected, and thus they will more likely feel some degree of estrangement from both their instrument and the shared musical result. The *degree* of distancing becomes a continuum to explore. As I learned from *Sensuous Geographies*, this estrangement becomes crucial to the relationship onstage and the resulting improvisation. There is risk, however: 'When you alter the sound of a performing partner you are engaging them in a rather special negotiation towards emergence. Some will feel they have lost control and resist the idea completely and others will find the resulting experience interesting and engaging' (Wessel 2006: 427). The player, then, needs to develop skills to deal with the 'not knowing', to comfortably inhabit that uncertainty, to confront and engage with their doppelgänger.

I seek out estrangement; it is an intentional part of my improvising methodology. I seek out players who find the experience engaging. By making strange I consciously invite play, and in turn am invited to play.

And in this situation, I too am surprised, challenged, provoked, resisted, alive!

I estrange my duo partner, so that they are confronted not simply with the sound they make, but my live electronics functions as a kind of audio distorting mirror, reflecting their sound back to them,

transformed. The effect is an offer, an opening, a provocation, a confirmation, a reaction.

As already noted, acousmatic, electroacoustic dislocation is an estrangement in time, place and source/cause (Emmerson 1994). Sound is de-contextualised, removed from its source; it is re-contextualised, projected through loudspeakers into a new space; it is made present again in a new time. And its source or cause may be less apparent. Sound processing may result in weaker 'source bonding' ('the natural tendency to relate sounds to supposed sources and causes, and to relate sounds to each other because they appear to have shared or associated origins' (Smalley 1997: 110)). Like Young's 'reality–abstraction continuum' (Young 1994), we might suggest a scale or continuum of estrangement, from the 'near normal' through the 'just connected' to the dis-connected/unconnected/unfamiliar. We can play with separation, ambiguity, confusion. What's what? Who's who?

So what are these processes that weaken the 'source bonding' or identity of the sound? The basic technical configuration I use is based on my practice in and experience of composed, mixed electroacoustic works. The instrument is captured with condenser microphones, sent to my computer via an audio interface and the resulting, transformed sound is played back over loudspeakers, plural. While I may amplify my partner for reasons of balance, as noted previously, the co-created sound world is projected as a field or environment which *immerses* the performer rather than emanating from them, as would be the case with an electronic instrument tethered to a local amplifier. The speakers create a stereo or multichannel 'stage' or field, or environment, surrounding but separate from the location of the player. The sound *that they are responsible for* is already beyond their instrument.

Savouret describes the loudspeaker as a magnifying mirror (Canonne 2010). This magnification, while ubiquitous in much music where the degree of amplification is fixed, becomes an active musical parameter when used dynamically. The instrument may become 'bigger' or 'smaller', related to perceived loudness or apparent presence or proximity. Further, when the spatialisation of the amplified sound is actively manipulated this too renders a scale of dislocation. The player is faced with their 'double', which has a degree of its own spatial autonomy, and this spatial separation may suggest opposition, complementarity, or more. The use of simple reverberation, the creation of an illusory space, can further enhance this sensation. The player must respond to this projection of themselves into the bigger space of Waters's 'larger, less "boundaried" sense of what a self might be' (Waters 2017). Their experience of self may move between observation and engagement, inside and outside, along an emotional, and therefore potentially musical continuum.

Dynamic filtering leads the performer to hear their sound rebalanced, focusing, perhaps, on a particular spectral area or behaviour that then becomes available to the player as musical material to explore in new ways. A kind of 'microphonic listening' (Savouret in Canonne 2010).

By playing with time-based transformation, the electronics allow the singer/player to step a little outside of time. The 'déjà entendu' of synchronised looping is widely used by musicians, often solo, to build their own accompaniment using simple loop pedals. Delayed repetitions (including looped samples) affect our perception of time. They may be further transformed to suggest an arresting of time; or may accelerate, decelerate, crescendo or decrescendo, offering opportunities to play with changing pace and dynamic shaping. Then transformed further again to explore space and loudness as mentioned previously, direction (reversed sounds), speed of playback and change of pitch. Repetition creates opportunities for counterpoint or heterophony, lines or textures. Other processes may freeze a moment in time, turning a moment into a sustained sound, a dramatic gesture into a flat line.

When we hear music we 'resonate' (Gibson 1979) to the information; we 'parse' it, dividing what we hear into what is meaningful; we notice (consciously and subconsciously) gesture in sound, we recognise shapes in sound in relation to perceived or imagined physical gesture/action. By editing in unexpected places, isolating fragments from a stream of sound regardless of the 'sensible option', we discover new actions that 'didn't happen' in the way we now experience them. We disrupt our understanding; we are forced to reconsider what we hear. This can happen in real-time with, for example, granular processes where a sound is cut up, with the added possibilities of silence between fragments, reordering, reversal, and transposition. More radically, granulation can create textures quite distant from the source, with fragments too small and processed to be recognisable, much more dense or sparse than the original. Fragmentation can thus suggest to a player a more hesitant 'double', stuttering, disturbed; or offer the opportunity to effect clouds of textures from simple materials.

Other processes, including moving filters, ring modulation or transposition, give the player opportunities to engage with the vertical domain of pitch and harmony (in its widest definition). And electronics can distort, contort, mask, overwhelm. In combination, the resulting complexity better resists control by either player. All of these technical processes that result in transformation of the acoustic player's sounds effect a degree of estrangement. This can feel like an

estrangement from the body, especially as an instrument is felt by musicians as an extension of their body; for singers the voice is even more so. It is also an estrangement from their identity as they both ecognise and feel alienated from their sonic/musical self and agency. Multiple, simultaneous estrangements/illusions can result, with each player feeling at once powerful and vulnerable, grounded and untethered, calm and excited. A real 'balancing act'. This doubling – things matching with their opposite merged into one – brings us right back to the core of Freud's *unheimlich*.

8. ELECTRONIC 'INSTRUMENT' DESIGN

The design of my electronic 'instrument' has been central to the development of my practice. Again, this has come 'downstream' of musical necessity, and has developed, and continues to develop, in ways in which I did not always expect.

Simon Waters reminds us that:

> Since the ubiquity of computers … allows for interactions largely independent of the resistances of the material world, such resistances must be consciously designed into these interactions. Thus far, 'interaction design' has focused primarily on comprehensibility, ease of use, legibility, and predictability, but much meaningful engagement with otherness lies in difficulty, resistance, unforeseeability, fragility, ephemerality, and risk. (Waters 2017)

As we have already discussed, this is not an instrument in the traditional sense, but a distorting mirror in which my performing partner is reflected; an expansion and transformation of their sound and their musical identity; an evolving 'limb' of their instrument over which they have less control. It is also designed to limit *my* control.

Hunt, Wanderley and Paradis in a paper at the 2002 NIME conference (Hunt, Wanderley and Paradis 2002) describe research on interfaces for making sound (i.e., new instruments) where more 'difficult' interfaces are found to be much more engaging and satisfying for users than those using simple mapping. An instrument you can learn to play in 2 minutes is not likely to be engaging or fulfilling for long. And as Raph Koster, in *Theory of Fun for Game Design*, tells us, 'Complexity is engaging – games, music, whatever' (Koster 2014).

In order to seek estrangement for myself – the unexpected – I learned from *Sensuous Geographies* that control is less interesting than 'materials in play'. How I *control*, in real time, the complexities of material, meaning and context is therefore important. I don't aim to *control* the player or even control every aspect of my own sounds; I am more interested in a shared shaping of musical result. I seek for a quality

of shared engagement and letting go of conscious control, which allows me a greater sense of flow in performance.

For this reason I have built a touch-screen interface in Lemur (Liine 2018) that controls some parameters with accuracy, others with less precision, and some with variable amounts of randomisation (see earlier). At the same time, in my improvising patch or 'environment' built in Max (Cycling '74, 2020) my approaches to and strategies for improvising are purposely designed to create an engaging complexity, and offer some degree of quasi-physical resistance for me in the 'playing' and for me as listener.

I have created a self-consciously playful interface in order to play that invites experimentation and error. I can set control parameters off on their own jittery, drunk walk, adding subtle texture, or surprising changes; banks of samples can be loaded but then the sample triggered may be chosen at random, at a pitch that may be fixed or, within limits, randomised; some single screen controls are mapped to multiple parameters; other parameters are completely hidden.

Deniz Peters says that 'Resistance is resistance to movement. In hearing resistance, then, one hears resistance to motion. Motion in music is the basis of musical agency' (Peters 2013). It is this resistance, and the resistance of the sound itself, that I seek to sense and engage with in my role, along with an engagement with the resistance the player offers me. In the development of my 'instrument' I aimed to build in resistance to my control, to create an interface that required effort and motion, and constant attention.

Resistance is expressed/experienced in a number of ways through both my instrument/interface and the transformations it can effect:

- resistance to synchronisation – for example, relative lengths of looped buffer selections are not based on even divisions of time and cannot easily be matched; my virtual faders are simply not precise enough.
- resistance to equal temperament – semitone-based transposition is available but rarely used; transposition in granular processes is on a continuous scale, and ring modulation produces unpredictable results both because the control of modulation frequency is not tied to an equal tempered scale and because neither player, each of whom is responsible for one of the inputs, know what pitch or frequency the other will choose.
- resistance to pulse – delays may be evenly spaced, but that evenness is one point on a touch-screen fader scale from extreme acceleration to extreme deceleration; loops can be switched to move randomly through the possible buffer space, or their lengths can be set to constantly vary.
- resistance to spatial stasis – most transformations have some spatial behaviour programmed in.

For example, looped buffers can be set to float around the stereo or multichannel field; the spatialisation of successive delays can be randomised or follow one of a number of trajectories.

- resistance to spectral stasis – the outputs of many processes can be re-processed through moving, semi-random filters, resulting in constantly shifting colours.
- resistance to 'technological listening' (Smalley 1997) – in creating complex layers of sound (through multiple layers of process) the intention is to create a listening experience that resists technical explanation, but guides a listener to musical listening, to the musical functions of the interaction.[1]

9. CONCLUSION

In live electronic improvisation, estrangement is useful in describing what the player feels. The co-created sound world created in this practice is often inextricable from the acoustic source alone; the player is simultaneously estranged from their usual identity yet completely integral to it. I have focused here on estrangement as a tool to create difference, disturbance, discomfort, surprise; live electronics can also support, sustain, reinforce, but it is in the estrangement that new possibilities emerge.

Estrangement leads to new *musical* possibilities. With improvised live electronics the resulting estrangement felt by the musicians can engender different musical interactions. As already mentioned, Evan Parker noted 'I just know that we can get to a certain music that you can't get to any other way' (Parker 2006). What the electronic 'offer' affords, suggests, even encourages the acoustic musician to do, 'downstream' of the musical impetus, is often very different from what would happen in a duo with another autonomous musician. Here the performer can ride the wave of process or dive into the undercurrent to swim in the opposite direction. There is a scale or continuum of estrangement.

The relationship is uniquely symbiotic and double. In the practice described here, the musical result is possible only through the electronic performer's presence and what transformations are enabled. Electronics extend the instrumental performer, who then duels/ duets with themselves.

There is co-estrangement. Crucially, *both* performers are estranged. The live electronics are completely reliant on the musical materials of the acoustic musician, as unknown to the laptop musician as the electronics are to the acoustic musician, hence

co-estrangement. Each of us makes the other 'strange' without knowing from moment to moment what it is that they will be estranging and reacting to. This is a novel and engaging form of interaction between partners where neither is in control entirely of their own or the other's sound – where each can surprise and influence the other's action and behaviour. Both participants can resist the other, they can attempt to control the other, or allow the unsuspecting estrangement to become a space for musical flow and play. For both partners, this co-dependence necessitates a surrendering of control of self and a surrendering to the musical flow: we share control of each other, and new relationships and a new kind of shared identity emerge.

Freud describes the uncanny as a feeling, a sensation, something aesthetic. An aesthetic of estrangement *in music* is suggested for further investigation.

[1]Improvised performances with singer Anne-Liis Poll and live electronics by the author (Poll and MacDonald 2018) are examples of this work.

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